

CLAIMS

What is claimed is:

1. A chip comprising a planar substrate material, said chip having at least one edge with a concave shape recessed in one direction.

2. The chip as claimed in claim 1, said chip further comprising an arrayed waveguide grating provided on said chip.

3. The chip as claimed in claim 2, wherein the shape of said chip is determined by the shape of said arrayed waveguide grating.

4. The chip as claimed in claim 2, said chip further comprising reinforcement means mounted on at least a part of said chip.

5. The chip as claimed in claim 4, wherein said reinforcement means is mounted on a narrow portion of said chip.

6. The chip as claimed in claim 4, wherein said reinforcement means is a copper plate.

7. The chip as claimed in claim 4, wherein said reinforcement means has a shape substantially similar to the shape of said chip.

8. The chip as claimed in claim 4, wherein said reinforcement means is larger than said chip.

9. A chip, comprising:

a first chip having at least one edge with a concave shape recessed in one direction;

a second chip having a contour that is substantially similar to the contour of said first chip; and

combining means for combining said first chip with said second chip.

10. The chip as claimed in claim 9, wherein said combining means is an adhesive.

11. The chip as claimed in claim 9, wherein:

said first chip is cut from a first wafer; and

said second chip is cut from a second wafer.

12. The chip as claimed in claim 11, wherein the purity level of said second wafer is less than the purity level of said first wafer.

13. The chip as claimed in claim 11, wherein said first and second wafers comprise a planar substrate material.

14. A wafer comprising a plurality of chips, wherein each chip has at least one edge with a concave shape recessed in one direction.

15. The wafer as claimed in claim 14, wherein said concave shape of said chips that are adjacent to each other are at least partially overlapped with each other.

16. The wafer as claimed in claim 14, wherein each of said plurality of chips have the same shape.

17. The wafer as claimed in claim 16, wherein the shape of each chip is an arcuate shape having two curved-line portions convexed in the same direction, and said chips are arranged at a predetermined spacing and respective end portions of said chips are connected to two mutually parallel straight lines.

18. A wafer as claimed in claim 16, wherein the shape of each chip is a funnel shape obtained by dividing in half a rhombus having two curved-line portions convexed in a direction moving away from each other, and said chips are arranged at a predetermined spacing and the respective end portions of said chips are connected to two mutually parallel straight lines.

19. The wafer as claimed in claim 14, wherein the concave shape of each chip is determined by the shape of an arrayed waveguide grating provided

on each chip.

20. A module, comprising:

a chip having at least one edge with a concave shape recessed in one direction;

a box comprised of an upper casing and a lower casing, said box accommodating said chip; and

a support body provided in said box.

21. The module as claimed in claim 20, further comprising temperature detecting means that detect the temperature inside of said box.

22. The module as claimed in claim 20, wherein said support body is a metal plate.

23. The module as claimed in claim 20, further comprising temperature detecting means provided on said support body.

24. The module as claimed in claim 23, wherein said temperature detecting means contacts said chip.

25. The module as claimed in claim 20, wherein said support body further comprises a spring part, said spring part in contact with a portion of said

box.

26. The module as claimed in claim 20, said support body further comprising at least one heat insulating column, said heat insulating column contacting a portion of said box.

27. The module as claimed in claim 20, further comprising a buffer agent disposed in an interior portion of said box.

28. A chip manufacturing method, said method comprising:
forming a plurality of elements on a wafer, each element bounded by its respective contours, and each element having at least one edge with a concave shape recessed in one direction; and
cutting out said plurality of elements from said wafer to obtain chips each comprising an individual element.

29. The chip manufacturing method as claimed in claim 28, wherein said chips are cut from said wafer using laser beam.

30. The chip manufacturing method as claimed in claim 28, wherein said chips are cut from said wafer using an ultrasonic vibration tool.

31. The chip manufacturing method as claimed in claim 28,

wherein said chips are cut from said wafer using hydraulic pressure.

32. The chip manufacturing method as claimed in claim 28, wherein dicing is used to cut the straight-line portions of the contours of said elements.

33. A chip manufacturing method as claimed in claim 28, further comprising mounting a plate on at least a portion of said chip.

34. A chip manufacturing method, said method comprising:
cutting out a first chip having at least one edge with a concave shape recessed in one direction;
cutting out a second chip having a contour that is substantially similar to the contour of said first chip; and
bonding said first chip to said second chip.

35. The chip manufacturing method as claimed in claim 34, wherein said first chip and said second chip are bonded together using an adhesive.

36. The chip manufacturing method as claimed in claim 34, wherein:
said first chip is cut from a first wafer; and

said second chip is cut from a second wafer.